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UNITED NATIONS DEVELOPMENT PROGRAMME

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DP/PROJECTS/7371

ENGLISH

APPROVAL OF UNDP ASSISTANCE TO A PROJECT OF CAMBODIA

IPF:(1992-96) $105 319 000

(CMB/92/002) - Rehabilitation of the National Research and Extension Network through Support to CARRDI

Date of approval by the AC:[1/]	14 October 1992
Expected duration:	30 months
Proposed Executing Agency:	UNDP/OPS
Lead Government Authority:	The Supreme National Council of Cambodia
Implementing Agents:	OPS and the International Rice Research Institute (IRRI)
Proposed UNDP contribution:	$792 200 Source of funds: IPF
Total UNDP Budget:	$792 200
Administrative and Operational Support Services (AOS)	$79 225 Agency: OPS

Project background

Rice dominates agriculture in Cambodia in terms of the number of people employed, the volume of production and the area grown (1.6 million hectares or 93 percent of the total area planted to crops). Prior 1969, the country was a net exporter of rice, with annual exports peaking at 500,000 tons in the mid 1960's. The ravages of war have dramatically reduced the area planted and the production levels declined leading to massive imports of the staple commodity. The rice shortfall could be as high as 150,000 mts for 1992. The national average rice yield in 1990 was 1.4 t./hectare which is the lowest in Asia. Wet season yields ranged from 0.7 t./hectare in 1979 to 1.3 t./hectare in 1990 whereas by contrast the dry season rice yields ranged from 1.7 t./hectare to 2.7 t./hectare registering a higher annual growth rate of 11 percent. The areas planted during the wet season have continued to increase, while irrigated dry season areas remained the same. The growing of modern varieties during the dry season has increased during the same period so that one can conclude that the yield increases registered can be attributed to improved crop management practices, the increased use of modern varieties and to land improvement.

The agricultural research and extension network in Cambodia is today totally fragmented with an extremely small cadre of trained researchers, technicians and extension workers. There is no institution in Cambodia today which has the critical mass of scientists needed to make major progress towards improving rice productivity; moreover, no single organization in Cambodia maintains an overview of national agricultural problems, ongoing research and training activities. The Ministry of Agriculture has accordingly established the "Cambodia Rice Research and Development Institute" (CARRDI) with the following tasks: (1) training of extension personnel,

[1/] This Fact Sheet reflects the status of the project/revision at the time it was approved by the Action Committee; modifications to the project/revision may have occurred subsequently.

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researchers and scientists; (2) production of high quality seed materials of recommended varieties; and (3) providing the venue for conferences, meetings, workshops on rice research and development. The starting-up of CARRDI is considered the first major step towards establishing an effective rice-farming agricultural extension capacity throughout rural Cambodia. In the longer term, it will contribute strongly to raise production levels to at least match and even exceed the basic demand.

In this perspective, the present project will in the immediate term, contribute to establish the preliminary requirements of a national institute where applied research and training can be effectively conducted. The establishment of the training institute of CARRDI is thus seen as essential to provide a critical linkage between applied research findings, seed production and extension.

Description of project

The development objective of the project is to increase production of rice and the productivity of rice-based farming systems through improved and expanded training opportunities for scientists, technicians, and extension workers in Cambodia.

The immediate objectives of the project are to: (a) establish the training capacity of CARRDI whereby a training center will be constructed (936 square meter) including a cafeteria and a dormitory and training equipment will be provided as well; (b) strengthen the capacity of CARRDI to carry-out training so as to contribute to the establishment of a research and extension network for rice production, such that 1,600 researchers, technicians, extension workers at central and provincial levels will have been trained, over a period of two years, on research methodologies and technologies, communication, data processing, computer use and transfer of technology to the farmers, and also training will be provided in the fields of experiment management, rice production, technology transfer, statistics, integrated pest management, field problems of tropical rice; and (c) enhance the sustainability of the training capacity of CARRDI so that 35 Cambodian researchers and technicians will be trained as "trainers" enabling them to conduct in-country training programmes in future.

Inputs

UNDP will provide one work-month for an evaluation specialist; a subcontract with IRRI including the provision of 24 work-months of a training specialist, one work-month of a construction specialist for the construction of the training center; training equipment; and miscellaneous costs.

Financial data

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Personnel	47 000
Subcontract	715 200
Miscellaneous	30 000
Total	792 200

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APPROVAL OF UNDP ASSISTANCE TO A PROJECT OF CAMBODIA

IPF:(1992-96) $105 319 000

(CMB/92/004) - Irrigation Rehabilitation Study

Date of approval by the AC:[1/]	**14 October 1992**
Expected duration:	**12 months**
Proposed Executing Agency:	**Government (The Mekong Secretariat)**
Lead Government Authority:	**The Supreme National Council of Cambodia (SNC)**
Implementing Agents:	**The Mekong Secretariat, the Department of Hydrology (Ministry of Agriculture)**
Proposed UNDP contribution:	**$1 067 600 Source of funds: IPF**
Total UNDP budget:	**$1 067 600**
Administrative and Operational Support Services (AOS)	**$85 400 Agency: The Mekong Secretariat**

Project background

In the predominantly agrarian society of Cambodia, the control and use of water to irrigate rice and field crops have traditionally been important to farmers for avoiding the effects of recurrent drought and ensuring higher agricultural productivity and food security. At present, it is estimated that 307,000 hectares are irrigated in the wet season and 103,000 hectares in the dry season. Water control and usage for agriculture in Cambodia ranges from the simple movement of water from one paddy to another, the retaining of receding floodwaters in the lowlands for dry season irrigation to the construction of dykes, reservoirs, diversion weirs and canal systems for the distribution of stored or diverted irrigation waters.

The irrigation tradition in Cambodia started centuries ago during the Angkor period when a relatively large and complex system of water diversions, canals and lakes were built in the Siem Reap area. The first "modern" irrigation schemes were developed during the French period (between 1930 and 1950) when gravity systems and flood protection dykes were constructed in Battambang, Siem Reap, Prey Veng and Kamong Cham provinces. During 1975 - 1979 the development of irrigation was taken to extremes. A countrywide network of canals, dykes and weirs was dug and constructed by forced manual labour. In many cases their design and layout were fundamentally flawed and are still detrimental to agriculture and the environment. Since 1979 until the late 1980s the irrigation sector received assistance from the former USSR, Vietnam and the NGO community.

Hydrology services have generally given high prority to the development of new irrigation schemes so as to increase rice production. The official target has been set nominally at 10,000 hectares per year for new irrigation coverage in order to achieve food self-sufficiency. However, due to the inherent problems in the irrigation structures, lack of expertise and equipment problems, the Department of Hydrology has tended to adapt an ad-hoc approach to repair and modify existing canals and irrigation schemes. Additionnaly, the floods of 1991 damaged many reservoirs, weirs and canal systems possibly affecting 100,000 hectares of irrigated land already

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setting back the official development target.

Due to the complex way in which water is utilized and the diverse development of irrigation systems in Cambodia it is difficult to assess with accuracy the current status of irrigation in the country. The main problems encountered in the sector can therefore be summarized as follows: (1) Absence of a comprehensive and technically correct inventory of the extent and physical status of irrigation structures; (2) Inadequate understanding of the actual and potential role or irrigation in Cambodia; (3) Extensive and overwhelming presence of badly designed and constructed irrigation systems which are very difficult to deal with in terms of needed rehabilitation, amelioration and/or decommissionning; (4) Consequent continuing environmental and farming system problems; and (5) An inadequate institutional capacity to undertake the planning, design, implementation of irrigation projects.

In spite of the strong interest expressed by the donor community to invest in the rehabilitation of the sector rehabilitation, plans have been held up due to the technical complexity of the many irrigation systems and structures in Cambodia and to the lack of information on the sector as a whole.

Description of project

The immediate objectives of the project are to: (a) produce a country-wide inventory of existing irrigation structures and systems, which will be conducted in two phases; (b) analyze the existing irrigation structures including, inter-alia, the potential of water and land resources, the social and socio-economic parameters of irrigated farming, the institutional capacity at the national and provincial levels and the impact on the environment; and (c) develop a prioritized list of projects for urgent rehabilitation.

Project activities will include: (a) making an inventory of 2,000 structures through extensive field investigations; (b) developing a more detailed questionnaire which will focus on a reduced number of systems (notionally between 200 - 300); (c) gathering data in greater detail on physical characteristics, size of land holdings, hectares covered, sketches, location, inter-linkages with other surronding hydraulic systems, population served, etc.; (d) reconciling data gathered through the inventory process with the data already available within the Departments of Hydrology and Land Use Mapping; (e) developing priority criteria on the information gathered from the inventory and analysis; and (f) preparing a set of pre-feasibility studies for urgent rehabilitation of 10 to 15 irrigation schemes to be urgently rehabilitated which will be presented to the donor community for funding.

Inputs

UNDP will provide 12 work-months for a senior irrigation engineer/CTA, 12 work-months for five United Nations Volunteers in the fields of irrigation engineering, hydrology, soils expertise, socio-economics and agronomy; a subcontract to provide the services of an irrigation study team; in-service training; expendable and non-expendable equipment; and miscellaneous costs.

Financial data

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Personnel	362 100
Subcontract	530 000
Training	10 000
Equipment	124 500
Miscellaneous	41 000
Total	1 067 600

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APPROVAL OF UNDP ASSISTANCE TO A PROJECT OF
CHINA

INDIANA UNIVERSITY
DEPT.

IPF:(1992-96) $176 600 000
(CPR/91/273) - Improving the Design and Construction Technology of Energy Sources Transportation Vessels

Date of approval by the AC:[1]	14 October 1992
Expected duration:	Four years
Proposed executing agency:	Government (China International Centre for Economic and Technical Exchanges (CICETE) with UNIDO as cocperating agency)
Government implementing agency:	China State Shipbuilding Corporation (CSSC)
Proposed UNDP contribution:	$1 500 000 Source of funds: IPF
Government cost sharing:	$ 610 000
Total UNDP budget:	$2 110 000

Project background

Adequate production and supply of energy is a critical developmental issues facing China during its current period of rapid economic growth. In recent years, despite large investment programmes in the energy sector and increased emphasis on energy efficiency and conservation, energy demand has consistently outstripped supply. In some regions of the country, particularly the South and the Southeast, industrial plants are underutilized by 20-30 percent because of energy shortages. While the production of coal, oil and gas falls short of demand, two key factors seriously aggravate the problem of energy supply in China. Firstly, the vast geographical distance between the major energy production bases which are concentrated mainly in the West, North and Northeast China, and the main end users, the industrial belt in South and southeast China. Secondly, China's energy resource profile which is highly skewed with 75 percent of its primary energy requirements met by coal. Furthermore, only 27 percent of coal production is used for electricity generation with the rest being used for direct combustion in boilers and on industrial feedstock.

China's annual coal production is estimated at 1.1 billion tons of which 680 million tons are transported over long distances, mostly by train. It is estimated that coal accounts for more than one-third of total cargo hauled by train, resulting in severe economic and environmental consequences. At present, less than 100 million tons of coal (14 percent) is transported by ship. In considering various strategies for improving energy sources supply, the shift from train to waterway transport of coal is a particularly attractive option because of its clear direct and indirect economic, environmental and social benefits. However, a critical constraint in this regard is the very shallow water depths of harbours in China which limit the size of ships that can dock to load and offload.

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The Government's long-term masterplan for increased waterway transport of coal foresees the construction, by year 2,000, of 34 shallow draft carriers of 35,000 DWT, one shallow draft carrier each of 50-60,000 DWT and 100,000 DWT, and three self-unloading vessel of 27,000 DWT each.

To this end, China has constructed two shallow draft carriers of 35,000 DWT. However, their performance has been less than satisfactory because of problems in ship design and construction techniques thereby affecting speed, maneuverability and ship behaviour, particularly in rough weather. To address the problem, the Government has opted for a capacity-building approach for the following reasons: (1) the Government's long-term plan is to build a fleet of shallow draft vessels as indicated above; (2) ship design is very specific to local water conditions, hence any shallow draft vessel design obtained through licensing would have to be adapted and China will have to develop national capability; (3) enhancement of the economic efficiency of waterway transportation of energy sources the capacity of shallow-draft vessels will, in the longer-term, have to be upgraded to 50,000 DWT and above; and (4) the Government also plans to adapt these vessels for carrying fuel which supports the capacity-building approach. UNDP technical assistance has therefore been requested because of its comparative advantage in providing a package of technical services including extensive training for related institutions.

Description of project

The overall objective of the project is to upgrade the technical capacity and know-how of three main agencies designated as the national centres for research and development of energy source vessels to a point where their combined efforts will result in the construction of technically advanced, efficient shallow draft coal carriers. The project is primarily human resources oriented and will build on a substantial store of expertise by leveraging access to specialized know-how and techniques in a cost-effective manner. The upgrading of capabilities will be focussed in three areas: (1) improving design capabilities and reducing design time; (2) more sophisticated and accurate testing of model designs; and (3) more efficient fabrication methods.

The China State Shipbuilding Corporation (CSSC) will be responsible for overall coordination and implementation of the project. To ensure a common design and technical base, CSSC has designated three Institutes for specific tasks as follows:
(1) Shanghai Merchant Ship Design and Research Institute for re-designing of shallow draft vessels and self-unloading vessels; (2) China Ship Scientific Research Centre for database network development and experimental testing of vessels; and (3) Shipbuilding Technology Research Institute for research and adaptation of shipbuilding techniques.

A comprehensive management and coordination mechanism will be put in place to ensure effective integration of various project activities and coordination between energy suppliers, energy vessel producers and vessel users.

Inputs

UNDP will provide 19 work-months of international consultancies and 237 work-months of training; a subcontract for specialized design software; and critical testing and research equipment under government costsharing.

Financial data

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Personnel	300 000
Subcontract	120 000
Training	1 059 000
Equipment	610 000
Miscellaneous	21 000
Total	2 110 000